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Article

## The Pattern Language Approach as a Bridge Connecting Formal and Informal Urban Planning Practices in Africa

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### Abstract

This article explores the use of the pattern language approach in bridging the gap between formal and informal urban planning practices in the African context. This study focuses on a case application within the urbanised region encompassing the Nakivubo wetland located in Kampala, Uganda. As in other cities in Africa with a colonial past, Kampala's planning system signals a profound gap between a technocratic, European paradigms-based type of planning and the everyday practices of citizens. This results in a "dual city," with formal and informal communities using resources and spaces differently, leading to spatial segregation and non-implementation of urban plans. To overcome this challenge, the pattern language approach is utilised in this research to link formal and informal practices through facilitating meaningful community participation and integrating tacit knowledge into the planning process. To achieve this, the researchers conducted fieldwork and interacted with the local community in informal settlements to develop informal patterns, while analysing the history and current organisation of formal planning institutions in Kampala to formulate formal patterns. The patterns were used as input for a community workshop, which resulted in a pattern language of wetland management practices and a framework that begins to bridge both formal and informal domains of urban practice. By using the pattern language approach as a tool to understand informal practices and their possible incorporation into a planning process that captures the needs of citizens, this research offers relevant insights into achieving sustainable and inclusive urban environments.

### Keywords

community participation; formal practices; Kampala; informal practices; informal settlements; pattern language

### Issue

This article is part of the issue "Assessing the Complex Contributions of Christopher Alexander" edited by Michael W. Mehaffy (Sustasis Foundation) and Tigran Haas (KTH Royal Institute of Technology).

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### 1. Introduction

In 2012, the Kampala Physical Development Plan (KPDP) was launched alongside the formation of the Kampala City Council Authority (KCCA). This marked the beginning of a new era for the Ugandan city, with fresh leadership and a renewed commitment to progress, following a history of corruption and inaction under its predecessor, the Kampala City Council (Goodfellow, 2010). The KPDP received praise for its transformative vision, particularly the proposal to create a central urban park (CUP) by designating the Nakivubo wetland (see Figure 1), the city's

largest, as a green open space to encourage tourism with facilities for recreation, sport and culture (KCCA, 2012). However, the proposal failed to consider the informal communities living and working in the wetland and its surroundings. Consequently, these communities are unaware of the proposed CUP and continue to inhabit the wetland. Despite the enthusiasm surrounding the KPDP, the much-anticipated park exists only on paper, and its implementation is yet to commence 10 years on.

This is a case of competing realities, which are commonplace in Kampala and across cities in the Global South (Goodfellow & Titeca, 2012). While formal



**Figure 1.** The Nakivubo wetland area. Source: Google Earth.

planning authorities have one idea for the use of a resource or space, informal communities are using it in another way. This divergence in priorities between formal and informal practices is ubiquitous throughout the urban planning process in Kampala, resulting in significant obstacles to achieving meaningful and sustainable change (Goodfellow, 2010).

This article departs from the hypothesis that the pattern language approach can provide a means of reconciling these competing realities. To test this assumption, we explore the development of a pattern language which is inclusive of formal and informal practices and its implications for practice in the context of Kampala, Uganda. For that, we conducted fieldwork and interacted with a local community in an informal settlement in Kampala to develop informal patterns. We also analysed the history and current organisation of formal planning institutions in this city to formulate formal patterns. The resulting patterns were used as input for a community workshop towards their validation. Its outcome was a pattern language of wetland management practices and a framework that begins to bridge both formal and informal domains of urban practice. By using the pattern language approach as a tool to understand informal practices and their possible incorporation into a planning process that captures the needs of citizens, this research offers rel-

evant insights into achieving sustainable and inclusive urban environments in the African continent.

## **2. The Pattern Language Between the Formal and the Informal**

“A Pattern Language” is one half of a single volume written by Christopher Alexander, that endeavours to propose a novel approach to architecture and planning (Alexander et al., 1977). The book defines a pattern as a recurring problem in architecture and its core solution and presents one possible pattern language which encompasses 253 patterns ranging from rooms, houses, neighbourhoods, and towns. Patterns can also be understood as tried-and-tested solutions that have been subjected to various conditions over time (Salingaros, 2000). The authors of the book contend that society should adopt a shared “pattern language” as a means of breathing life into buildings and towns. The aim of the book is to furnish users with a common, dynamic language that can evolve over time as more patterns are discovered. Although it is not intended as a manual per se, the book serves as a springboard for users to develop their own pattern languages. The patterns are presented in a consistent format to facilitate clarity and are organised from the largest scale (towns and regions) to the smallest

(construction details). It is worth noting that the patterns are interdependent and are supported by the larger patterns in which they are embedded as well as the smaller patterns that they themselves embed (Alexander et al., 1977).

Since its inception, Alexander's work has been met with mixed reception (Bhatt, 2010). While some in academia have shown interest—particularly in the areas of user empowerment, community participatory design, in the use of patterns in the design process (Bhatt, 2010)—practitioners in the field of architecture, for which the work was intended, have not fully appreciated the significance of patterns (Salingaros, 2000). Critics have taken issue with the generalisations made in the book, arguing that the patterns inhibit creativity and diminish intellectual capabilities (Bhatt, 2010). They contend that design cannot be reduced to a few diagrammatic languages (Cai, 2018) and that the “Alexandrine” patterns lack thorough research and empirical content (Dovey, 1990), rendering them inapplicable in other contexts. Additionally, some criticise the implication of participatory socialism, deeming it impractical in our current capitalistic and individualistic societies (Dovey, 1990). The proponents of the pattern language approach argue that patterns are not just theoretical constructs but are grounded in empirical observations (Salingaros, 2000), providing a direct link to our experience of the built environment (Bhatt, 2010). According to them, these patterns, as put forth by Alexander, have a personal and intuitive resonance with users (Cai, 2018), and offer a philosophical critique of the “modern alienated condition” by transforming functional spaces into socially interactive ones (Bhatt, 2010). They argue the book's overarching goal is to make architectural knowledge accessible to the everyday user by creating a system of knowledge that “blurs the distance” between professionals and laymen (Bhatt, 2010).

When discussing the Alexandrine patterns, proponents and critics alike tend to focus solely on the content of the 253 individual patterns created by Alexander and his colleagues. However, we argue that while it is important to analyse each pattern's architectural merit, such a narrow discourse fails to fully acknowledge the broader and more holistic approach of the pattern language as a whole. This article aims to demonstrate the usefulness of the pattern language approach in urban planning, especially in the context of contemporary planning in cities of the Global South. Our focus is on how this approach can facilitate communication between professionals and laymen, as these cities often struggle with bridging the gap between the two. Our interest lies in the idea that complex planning information, or what we refer to in this article as formal practices, can be deconstructed into comprehensible units of knowledge, while citizens' innovative activities or informal practices, can be documented in formats that can be understood by both experts and non-experts.

While employing the pattern language approach, we make use of patterns and the pattern field. According to

Salingaros (2000), the pattern language's value lies in the connective rules that govern how patterns relate to each other. These rules are analogous to the rules of linguistic language (Cai, 2018), which allow individual words to be combined into meaningful sentences. In the same way, the connective rules give a pattern language its meaning, elevating it beyond a mere catalogue of patterns (Salingaros, 2000). To visualise the links between patterns, Salingaros (2000) proposes a “connective map” or pattern field (van Dorst, 2013). This pattern field serves as a framework for establishing connections between patterns and is the foundation of our argument in favour of the pattern language approach. Our article focuses on the effectiveness of this approach in integrating formal and informal practices in wetland management in Kampala, as demonstrated by a community workshop held in Kasanvu, an informal settlement on the outskirts of the Nakivubo wetland. We developed “informal” patterns through fieldwork and expert interviews in informal settlements and “formal” patterns by analysing the history and organisation of formal planning institutions in Kampala. These patterns formed the main input for the workshop, resulting in a pattern language of wetland management practices and a pattern field that established connections between the formal and informal patterns.

The pattern language approach has been utilised in a limited number of cases in Africa. Steyn (2006) employed the Alexandrine patterns to portray Malindi, a coastal town in Africa, while Eglin (2020) applied it to convey the vision for Mooiplaas, a community in South Africa's Eastern Cape province. Despite a handful of such examples, the pattern language approach has not been extensively studied in African planning literature. It is clear that a gap exists in terms of utilising the pattern language as a means of comprehending informal practices and their integration into the formal planning process, as well as a tool for fostering meaningful community involvement.

In this context, it is crucial to clarify the meanings of formal and informal practices. Formal planning practices refer to the activities of institutions mandated with urban planning and management. This encapsulates the discipline of urban planning, which has been primarily defined by Western scholarship and practice over the last century (Yiftachel, 2006). While there are variations in formal planning practices across the world (Nadin & Stead, 2008), it is widely acknowledged that the Western canon has been dominant, and this has had varied consequences for planning practices globally. In Sub-Saharan Africa, planning has largely adopted French and British technocratic paradigms inherited from colonial times, which are not well-suited to address local realities (Home, 2015). In some instances, formal planning has shifted from a technocratic approach, where the planner was solely responsible for city planning and design, to the rise of urban governance as a guiding concept in planning. This shift has resulted in

a redistribution of power from the planner to various urban actors with a stake in the urban planning process (Healey, 1996). This is the case for Kampala, where the responsibility of urban wetland management is distributed across various national- and city-level agencies, notably the KCCA, the Ministry of Water and Environment (MWE), and the National Environment Management Authority (NEMA) which is a semi-autonomous parastatal agency under the MWE. These institutions are mandated with the planning and management of the Nakivubo wetland to ensure its sustainable use albeit lacking the resources and capacity necessary to oversee project implementation (World Bank Group, 2015). These institutions carry the mantle of the colonial legacy that is embedded within the top-down planning frameworks (Guma, 2016) that guide city development. Power is concentrated at the top by overseeing councils or committees which dictate almost all decisions (Guma, 2016), guided by an array of legal tools including policies and regulations (World Bank Group, 2015).

Informal practices can be generally defined as the activities undertaken by groups of people or communities that are outside of the formal processes (McFarlane, 2012). The term “informal” has recently gained popularity in contemporary urban planning theory as more scholars call for the recognition of other ways of city-making outside of the mainstream Western models (Bhan, 2019). Informal practice is not limited to a specific context but rather exists in all arenas of urban planning from formal institutions to informal groups and communities (Roy, 2011). This article focuses on informal practices within the Nakivubo wetland communities, specifically in the two informal settlements of Kasanvu and Kitintale, which are among Kampala’s 57 informal settlements (Richmond et al., 2018). Despite the challenges of living in a wetland, the residents here engage in a wide range of activities, some of which are detrimental to the area’s sustainability (Richmond et al., 2018). However, there is an opportunity to harness the innovative and existing socio-economic practices in these communities to upgrade the Nakivubo wetland area in a sustainable manner. By involving the local community in the upgrade process, the planning becomes more participatory and empowering (Das, 2015). Moreover, this approach utilises the residents’ local knowledge, which has been refined over time through developing resilient and sustainable forms of survival (MacPherson, 2013).

Informal practices can serve as a means for realising urban development projects, essentially functioning as an extension or practical arm of formal practices. However, we submit that for Kasanvu and Kitintale’s informal practices to significantly impact urban development, there needs to be a “formalisation” of these practices, as well as an “informalisation” of formal practices. This involves systemising the informal practices to be integrated into existing formal planning structures and simplifying formal practices to align their objectives with the existing informal practices. The following sections

detail an attempt to harmonise Kasanvu and Kitintale’s informal practices with KCCA and NEMA’s formal practices using the pattern language approach.

### 3. Methodology of Using the Pattern Language Approach

The formal practices pertaining to the management of wetlands are outlined in the policy documents and institutional structures of KCCA and NEMA. These practices required documentation in a clear and concise format. In contrast, informal practices are interwoven into the physical environment and socio-economic practices of the wetland communities. Observing these practices was crucial before recording them in an organised and comprehensible manner. As mentioned in the previous section, a pattern language has two key components: patterns and the pattern field. Patterns are used to condense diverse information from various sources into easily understandable blocks of knowledge (Hausleitner et al., 2022; Hill, 2020), while the pattern field provides an overview of these patterns and facilitates dynamic connections between them (van Dorst, 2013). In addition to written information, patterns also incorporate visual representations, which facilitate understanding for a broad audience, such as the research participants. The use of patterns allowed for the collection of information on practices to be stored in a condensed and consistent format, and the pattern field facilitated the identification of connections between formal and informal practices.

#### 3.1. Formal Patterns

We began the process of formulating the formal patterns by documenting the formal practices of wetland management by the city authorities. There are primarily two institutions that have the mandate of planning and management of the Nakivubo wetland area: KCCA and NEMA. The formal practices were ascertained from an analytical review of the wetland management policy documents which are the National Environment Act (MWE, 2019), National Environment (Wetlands, Riverbanks, and Lakeshores Management) Regulations (NEMA, 2000), KPDP (KCCA, 2012), and the Kampala strategic plan (KCCA, 2014). The formal practices were made into so-called formal patterns which constituted three categories, namely: the institutions, their policies, and the derived spatial actions. As a way of ordering the patterns, it was important to ascertain the scales on which they operate in relation to the governance structure of Kampala City. The scales, therefore, consist of the national scale, city scale, division scale, ward scale, and zone scale. The scales provided the first level of organising the patterns; at each scale, similar patterns were merged, and redundant patterns were removed through an iterative process (see Table 1).

### 3.1.1. The Institutions and Policies

KCCA is the governing authority for Kampala city under the Ministry of Kampala and Metropolitan Affairs. The authority is divided into political and technical wings. The technical wing (TW) is composed of 10 directorates, two of which have sections that are directly involved with wetland management, planning, and design. These are the Environmental Management Unit (EMU) under the Directorate of Public Health Services and Environment (DPHSE) and the Landscape Section under the Directorate of Physical Planning. The political wing is composed of five division mayors, each governing over one of Kampala's divisions. Under each division mayor is a division urban council with a Department of Public Health and Environment (DPHE), concerned with environmental management. The division is then divided into wards, each with a ward urban council that includes a Secretary for Production and Environmental Protection (SPEP). The wards are then divided into zones, the smallest unit of formal administration in the city, each with a zone urban council that also includes a SPEP.

NEMA is an agency under the MWE with a mandate of regulating and coordinating environmental management in the country. NEMA appoints a Lead Agency (LA) which then appoints an environmental officer (EO) to prepare the National Environmental Action Plan (NEAP) for the wetlands sector and also assist the local governments, in this case Kampala, with the preparation and approval of the City Environment Action Plan (CEAP). The CEAP is prepared by the EMU, in conformity with the NEAP and takes into account the Division Environment Action Plan (DEAP) and the Zone Environment Action Plan (ZEAP) which are prepared by the DPHE and the SPEP respectively.

### 3.1.2. The Spatial Actions

As part of its urban climate change strategy, KCCA undertakes to develop natural systems that minimise urban flooding as a way to mitigate risks posed by climate change. In order to meet the city's need for more green open spaces and parks, the KPDP proposes that the wetlands within the city be transformed into a green system of urban parks. This will prevent the wetlands from further encroachment and allow for the restoration of their ecological functions. To complement Lake Victoria, which is situated in the south of the city, the plan proposes that the Nakivubo wetland area be turned into a CUP because of its substantial size, central location, and connection to the lake shoreline. According to the plan, connecting the wetlands to the Lake Victoria shoreline will ensure continuity of ecosystems across the urban landscape thus strengthening the overall urban parks and lakefront green system. In the environmental regulations, wetlands are considered of great national and local importance as ecological systems that act as a habitat for flora and fauna. It is also proposed that wetlands are used to host research and tourism activities because of their biological diversity and ecological importance.

At the division level, the city proposes the development of "environmental slum upgrading projects" (ESUP) through the creation of land banks to allow for land titling and encouraging incremental housing projects to improve the livelihood of slum residents and their overall environment. The strategic plan (Kampala City Council Authority, 2014) suggests developing comprehensive community service master plans to ensure collaboration between social groups and community initiatives to guide investment. These initiatives could include wetland conservation by local communities where the traditional use of wetland resources can be permitted.

**Table 1.** Patterns from formal practices used in the workshop.

Scale	Institutions	Policies	Spatial actions
National	Technical Committee on Biodiversity Conservation, Environment Officer	Environment action plans and disaster management plans	Natural flood mitigation systems, wetland conservation, and management strategies
City	Landscape Section, Environment Management Unit	KPDP and build environmental sustainability	Slum upgrading, linear lakefront system, wetlands to urban parks, and an agriculture resource centre
Division	DPHE	Local Environment Action Plan and Environmental Impact Assessment	Connected green spaces, research and tourism initiatives, and wetland habitat for flora and fauna
Ward/Zone	Environment Protection Group	ZEAP and participatory planning platforms	Upgrade of drainage channels, coordinated community activities, urban agricultural schemes, and waste management initiatives

The local communities can receive training on sustainable urban agricultural practices from the resource centres and apply this knowledge through urban agricultural schemes (UAS). To tackle the urban flooding issue, the strategic plan proposes an increase in waste management initiatives (WMI) and sanitation projects (SP), and the widening, reconstruction, and greening of the primary and secondary drainage channels of the city in order to improve its water retention and drainage capacity.

### 3.2. Informal Patterns

In February 2022, we conducted site visits and interviews with residents of the Kasanvu and Kitintale informal settlements to document their everyday practices related to flood resilience, mitigation, and adapting to living in a wetland environment. These practices primarily took place in public spaces, such as pathways or open compounds. However, we found that these spaces were not only important for flood resilience but also for the overall social and economic resilience of the community. This highlighted the importance of public spaces to the sustainability of these communities and helped us identify four working scales for the informal patterns: neighbourhood, street, courtyard, and house. We categorised the informal patterns into two groups: local actors and on-the-ground initiatives (see Table 2).

#### 3.2.1. Neighbourhood Scale

In informal settlements, sizable empty fields are commonly used as playgrounds for children. These open areas also serve as temporary water retention areas during heavy rainfall, releasing the water gradually into the ground. Some of these grounds even host socio-economic activities such as brickmaking, as the wetland areas have clay soils and a constant presence of water which are ideal for construction materials that are in high demand. Additionally, due to the high volume of waste transported along with stormwater that ends up in informal settlements, some residents engage in waste sorting and recycling activities in these open spaces. Water collection sites and communal social areas are often found near or within these open grounds. The community leaders are the key local actors in the neighbour-

hood, usually held in high regard by the residents. These leaders may be proprietors of a local business, manage the neighbourhood school/church, or serve as leaders in other capacities. They are the best-suited individuals to act as custodians over the initiatives existing at the neighbourhood scale.

#### 3.2.2. Street Scale

A pedestrian path runs alongside the Nakivubo Channel, created to improve access to various parts of the settlement. However, this path serves multiple purposes beyond simple convenience. It acts as a boundary for the Kasanvu informal settlement and also functions as a buffer from the channel in case of overflow. Locally crafted bridges have been installed on the pathways that intersect with sizable drainage systems within the informal settlements, which has helped in improving accessibility and safety of the communities. Additionally, small drains have been dug in some parts of the pathway and filled with stones to facilitate drainage during rainy weather. In certain areas, the drains are equipped with a mesh that acts as a sieve, catching solid waste to prevent blockage downstream and keep the channel clear.

Shopkeepers play a vital role in the community's street-level activity since many of the shops are located along the pathways. Shop owners often construct bridges over the drains to provide customers with access to their stores. They may also assume responsibility for repairing these bridges and maintaining the drains near their establishments.

#### 3.2.3. Courtyard Scale

Open spaces of different sizes and shapes are intentionally incorporated between houses in settlements to facilitate accessibility, drainage, and social activities. These spaces may include central water sources, such as boreholes and metered water from the national water and sewerage corporation, which serve multiple households within the courtyard. Additionally, residents share sanitary facilities such as showers and toilets, which are typically situated in central locations within the settlements. The key actors at this scale are the water and toilet attendants who are tasked with collecting dues from residents to maintain and sustain these facilities.

**Table 2.** Patterns from Informal practices used in the workshop.

Scales	Local actors	On-ground Initiatives
Neighbourhood	Community leaders	Open grounds, waste recycling, brick making, community social space, urban green space, community conservation activities
Street	Shopkeepers	Streets as drains, access bridges over drains, waste filters, channel street
Courtyard	Attendants	Common space for waste, sanitation projects.
House	Residents	Elevated floor level, water harvesting, garden/agriculture lots

### 3.2.4. House Scale

New residents in the Kasanvu settlement, particularly those located close to the channel, have adopted a new method of construction to combat the effects of flooding. This involves elevating the floors of their houses on wooden stilts. In contrast, long-time residents with older homes have opted to construct barriers across their house openings or around the perimeter to prevent water from entering their homes. Additionally, due to the abundance of water and fertile soil, some residents have taken up urban farming. They have allocated portions of the wetland area to cultivate crops for personal consumption and commercial purposes. At the household level, the primary actors in Kasanvu are the residents themselves. They are responsible for building structures that are resilient and safe, and for engaging in urban agriculture.

## 4. Pattern Testing in Community Workshop

The patterns derived from the practices described in the previous section became the key input for a workshop organised in February 2022, in Kasanvu. The patterns were presented in a visual format of a pattern card, each consisting of the title, a short description, and an illustration or image. The workshop was attended by urban planners from NEMA and KCCA representing the formal institutions, and residents of Kasanvu and Kitintale informal settlements, who included the youth and elderly.

The workshop was organised in three sessions: prioritisation of patterns, creation of a shared vision with the selected patterns, and feedback on the workshop process. In the first session, lasting about one and a half hours, the workshop process was explained to the participants, who were then divided into two groups. Each group of participants was given a set of pattern cards in random order and asked to discuss and deliberate on them. The participants had to select their preferences for the patterns by use of a colour coding scheme: blue (*most agreed with*), green (*agreed*), yellow (*unsure*), and orange (*least agreed with*). A significant proportion of this session was dedicated to the explanation of the patterns to all the participants so that they were able to make an informed decision on the selection. The patterns deriving from the informal practices were much simpler to explain and understand because the images used on the pattern cards were more representational of the actual practices. On the other hand, the patterns from the formal practices were much more abstract and had more technical terms. This made them harder to explain and also to translate into the local dialect.

The second session which lasted for one hour involved the creation of a shared vision where the participants were asked to position on a map where their most preferred patterns would be best implemented. The idea behind this session was to test how well the patterns had been understood by the participants and

if they could be used as a tool to co-design a shared vision for the neighbourhood, taking into consideration the interests of the formal institutions and the residents of the informal settlements. However, the majority of the participants were not able to understand or interpret the map and as a result, they were not able to make informed decisions about where the selected patterns could best be employed. It was also difficult to grasp the essence of the exercise since the patterns were too many, as were the participants. This resulted in a heightened responsibility of the workshop moderator in steering the discussion.

In the last session of the workshop, the participants shared their experience with the workshop by filling out a survey, the results of which showed that the majority were able to follow the process and freely express their opinions albeit having trouble understanding the contents of some pattern cards.

## 5. Results: A Pattern Language of Wetland Management Practices in Kampala

The resulting set of patterns is presented in Table 3, below.

As mentioned earlier, this article aims to investigate the potential of pattern language in connecting informal and formal urban planning practices. Hence, after refining the patterns through the workshop, the next step was to develop a pattern field (see Figure 2) in order to establish connections between the patterns. In developing the pattern field, we considered two aspects; first was the scales on which the patterns existed and second was the categories in which they could be grouped. These aspects thus became the two axes for the pattern field: the categories on the horizontal axis (Political, Socio-Economic, and Spatial) and the scales on the vertical axis (National, City, Division, Zone, Neighbourhood, Street, Courtyard, and House).

The resulting pattern field of the combined formal and informal patterns on wetland management consists of the following: the institutions mandated with wetland management in Kampala, their formulated policies and resulting goals and actions, and the existing on-ground initiatives of informal communities, and the local actors. The pattern field can thus be understood as consisting of four quadrants: the institutions in Quadrant 1, their goals in Quadrant 2, the on-ground initiatives in Quadrant 3, and the local actors in Quadrant 4 (see Figure 3). Currently in the urban planning and management of wetlands in Kampala, the most prominent and existing link is between the institutions (NEMA and KCCA) and their goals, in other words, between Quadrants 1 and 2. Through the development of the pattern field however, there are connections made between the goals of the institutions and the existing on-ground initiatives (Quadrants 2 and 3), and between these initiatives and the local actors (Quadrants 3 and 4). The pattern field also illustrates how the local actors can then be



**Table 3.** Patterns after the workshop.

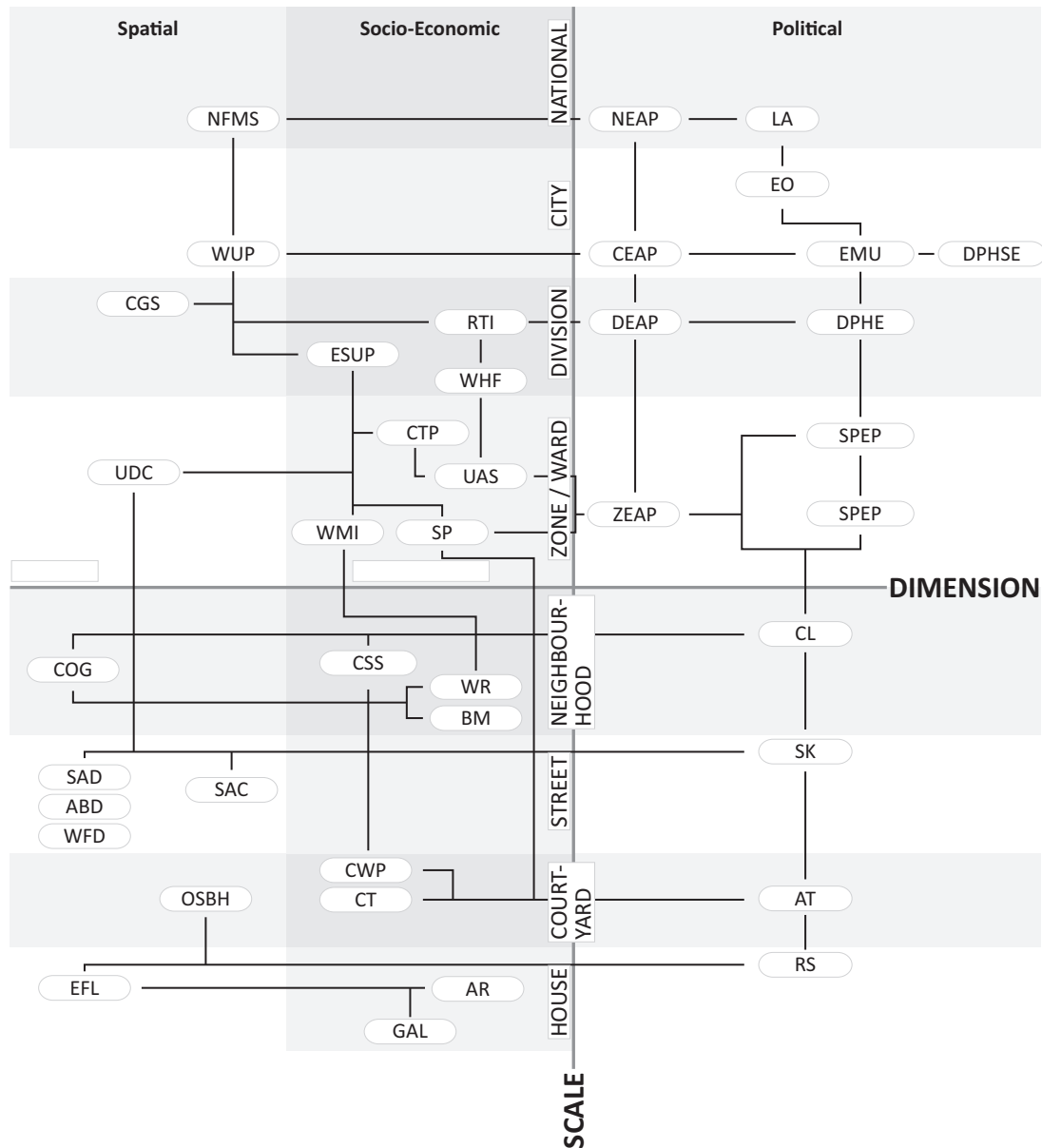
Scale	Spatial	Socio-economic	Political
National	Natural flood mitigation systems (NFMS)		Ministry of Kampala and Metropolitan Affairs (MKMA), Ministry of Water and Environment (MWE), National Environment Management Authority (NEMA), Lead Agency (LA), National Environmental Action Plan (NEAP)
City	Wetlands to urban parks (WUP)		Kampala City Council Authority (KCCA), Technical Wing (TW), Environmental Officer (EO), Environmental Management Unit (EMU), Directorate of Public Health Services and Environment (DPHSE), City Environment Action Plan (CEAP)
Division	Connected green spaces (CGS)	Environmental slum upgrading projects (ESUP), Research and Tourism Initiatives (RTI), Wetland habitat for flora and fauna (WHF)	Department of Public Health and Environment (DPHE), Division Environment Action Plan (DEAP)
Ward/Zone	Upgrade of drainage channels (UDC)	Community training programmes (CTP), Urban agricultural schemes (UAS), Waste management initiatives (WMI), Sanitation projects (SP)	Secretary for Production and Environmental Protection (SPEP), Zone Environment Action Plan (ZEAP)
Neighborhood	Communal open grounds (COG)	Waste recycling (WR), Brick making (BM), Community social space (CSS)	Community leaders (CL)
Street	Streets as drains (SAD), Access bridges over drains (ABD), waste filters on drains (WFD), street along channel (SAC)		Shopkeepers (SK)
Courtyard	Open spaces between houses (OSBH)	Centralised water points (CWP), communal toilets (CT)	Attendants (AT)
House	Elevated floor level (EFL)	Animal rearing (AR), Garden/ agriculture lots (GAL)	Residents (RS)

incorporated into the existing governance structures of formal planning for wetland management (Quadrants 4 and 1).

## 6. Discussion

Through our work, we have discovered that the development of a pattern language and the community workshop are mutually beneficial processes. The workshop

plays an integral role in the iterative process of pattern language development, while the pattern language approach enhances the workshop. By using patterns as input for the workshop, the participants found the process engaging and less overwhelming. The patterns captured the activities and initiatives of local residents, making them better understood and appreciated by all workshop attendees. It was particularly empowering for the residents of the informal settlement to explain



**Figure 2.** The pattern field. Note: The acronyms represent the respective patterns; refer to Table 3 for the full terms of the abbreviations. Source: Namwanje (2022, p. 114).

the informal patterns to the representatives of KCCA and NEMA. Formal patterns, on the other hand, condensed information from lengthy policy documents into succinct points that were easier to comprehend and explain. This facilitated an effective exchange of information where residents were made aware of the plans of KCCA and NEMA for their environment, and they were able to provide feedback and ask questions. The workshop provided an avenue for patterns to be revised based on the input of participants from formal and informal institutions. Essentially, the workshop acted as a mirror, reflecting information from the formal and informal arenas of planning back to the actors involved.

Here, we will reflect on the workshop process, assessing what worked well and where improvements could have been made. During the workshop, it became clear

that the extracted patterns, both formal and informal, were unrefined. The definitions for formal patterns, in particular, were too vague and provided only simplified explanations of the complex language found in policy documents. Additionally, some of the illustrations used to convey the patterns were too abstract, making them difficult to comprehend. The informal patterns, on the other hand, employed simpler imagery that was easier to comprehend. However, in some cases, the imagery did not accurately convey the pattern’s description and oversimplified the patterns. These observations align with criticisms from opponents of the pattern language, who argue that the patterns can be overly simplistic and fail to capture the complexities of the subject matter. Context-specificness is another issue that critics have raised, making it challenging to transfer patterns to other

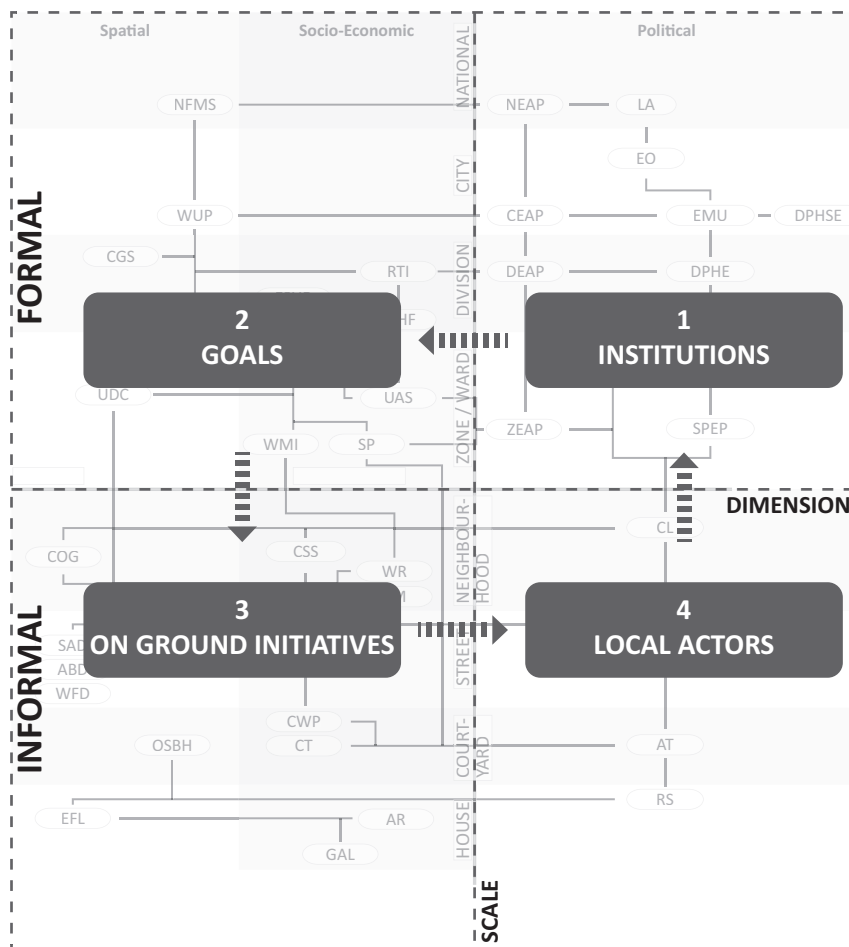


Figure 3. The quadrants of the pattern field. Source: Namwanje (2022, p. 112).

contexts. This is especially true for formal practices, which often rely on policy documents that can vary significantly from one location to another.

Upon reflection on our workshop experience, we have identified some actions that could have led to better results. Firstly, we realised that the initial session, which involved explaining the patterns to all participants before selecting them, was critical and should have been conducted separately in advance. It was necessary for participants from formal institutions to comprehend the informal practices and how they could align with existing planning policies. This would have enabled formal institution actors to understand their policies better, identify gaps, and reconcile them. Secondly, a comprehensive description of each pattern, translated into the local dialect, should have been provided to all participants before the workshop. This would have allowed them to familiarise themselves with the terms and descriptions, particularly for those from informal settlements who are not well-versed in technical terms and English. During the workshop, the patterns were not categorised, resulting in an unstructured prioritising process. Thus, we concluded that sorting the patterns into the predetermined categories of political, socio-economic, and spatial, and then deliberating them in order of

scale, would be more structured and organised. This would allow for better connections between similar patterns and eliminate redundancies. In terms of pattern cards, we suggest using a combination of schematic diagrams and infographics for formal patterns and imagery and infographics for informal patterns. Moreover, the descriptions of formal patterns should be revised into simple and less technical terms, while those of some informal patterns should be elaborated.

In considering the pattern language approach, we previously discussed the concept of “formalisation” of informal practices and “informalisation” of formal practices, in order for both sets of practices to make a significant impact on Nakivubo wetland’s urban development. The community workshop, which employed the pattern language approach, facilitated these necessary processes. In this research, “informalising” formal practices refers to simplifying them for better comprehension by the general public. However, during the workshop, it became clear that this was no easy task. In fact, it appeared that it would require multiple workshops to fully explain the formal patterns to the community members of Kasanvu. Nonetheless, despite these efforts, it is likely that the complexities of the urban planning process will still be difficult for a layperson to fully comprehend.

This is because there are numerous factors and decisions that are involved in the planning process which cannot be fully conveyed through a single pattern card. The pattern on UDC, for instance, is an extensive and complicated process involving multiple actors, which cannot be fully captured on the pattern card. The oversimplification of formal processes, while necessary, might also hinder the implementation process of the patterns since overlooked and unexplained aspects of the practice can pose challenges in the long run. As to whether informal practices can be “formalised,” this proved to be more feasible. These practices are usually straightforward solutions to urban issues, and the necessary information to describe them is easily accessible. However, these practices arise from distinct socio-economic structures that regulate informal settlements, which must be comprehended and integrated into the pattern development process. To successfully incorporate the pattern language approach into urban planning, further workshops are necessary to refine the process and address the challenges identified in this section. These workshops will aid in finding effective solutions and enhance the approach’s overall effectiveness.

## 7. Conclusion

In the context of urban planning in African cities, there is much to be gained from the pattern language approach. While critics may be correct in their assessment of the limitations of the pattern language, we agree with the proponents that this approach has much to offer. In urban areas like Kampala, formal and informal practices can often collide, creating a need for planners to seek out methodologies that can reconcile these opposing forces. One effective approach is to foster community involvement in the urban planning process. However, merely engaging citizens is insufficient for successful implementation if informal practices are not incorporated. To overcome this challenge, community workshops that bring together both residents and professionals are vital. The pattern language approach is valuable in this regard as it provides a means for the workshops to promote effective communication between professionals and laypeople. By deconstructing formal planning practices into comprehensible units of knowledge and informal practices into understandable formats, the pattern language approach can foster more meaningful community engagement during the workshops and help ensure that informal practices are considered in the planning process. While more research is necessary to fully realise the potential of the pattern language approach, this research illustrates its usefulness in linking formal and informal practices and facilitating meaningful community engagement. There is still much work to be done in utilising the pattern language approach in urban planning in Africa, but the potential benefits are clear.

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## Conflict of Interests

The authors declare no conflict of interests.

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